CLAIMS

1. A nuclear magnetic resonance imaging apparatus, comprising:

a unit for exciting and receiving nuclear spin signals in a body under examination or a part thereof,

an electronic driver unit for driving devices of the signal exciting and receiving unit such as units feeding special sequences of excitations signals and receiving the corresponding nuclear resonance echoes signals,

an electronic unit for controlling the electronic driver unit to generate the said sequences of excitation signals and to receive the corresponding nuclear resonance signals,

a unit for processing the received signals and transforming them in displayable image data,

a unit for displaying the image data,

a unit for filing and storing the image data,

a unit for entering commands to the signal exciting and receiving unit and or to the driver unit and/or to the controlling unit of the driver unit and/or to the unit for processing the received signals and transforming the nuclear resonance data received in displayable image data, the unit for displaying the image data, the unit for filing and storing the image data, the said units being formed partially by specific hardware and partially by commercial hardware such as commercial computers, particularly a personal computer, running specific programs for the driving, controlling, processing, displaying, storing operations,

a bidirectional communication bus being further provided for the communication between the different units, which bus encodes data consistently with the communication buses normally used to interface computer peripheral devices, and/or in communication networks,

wherein at least one part of the personal computer hardware is formed by a client and part by a server computer (Server PC) communicating one with the other by means of a conventional network.

2. The nuclear magnetic resonance apparatus according to claim 1, wherein the client computer is mainly formed by a motherboard comprising a local CPU and only a network interface such as a conventional network card or network controller and the local client computer only manages the communication with the server computer (server PC) in which one all the hardware units and software reside which are necessary for controlling the driving units of the exciting and receiving units located in the machine frame of the exciting and receiving units themselves, for processing the received data obtaining from them the image data, for displaying, filing, storing the said image data, and for receiving and processing the commands inputted by the machine operators and also for managing the network communication.

3. The nuclear magnetic resonance imaging apparatus as claimed in claim 1, wherein peripherals units may be provided such as a display monitor, a command input device mass-storage devices like hard disks, printers, portable storage devices reader and writer units, some of which peripherals may be connected directly only to the client computer or only to the server computer.

4. The nuclear magnetic resonance imaging apparatus according to claim 3, wherein peripherals units may be provided such as a display monitor, a command input device mass-storage devices like hard disks, printers, portable storage devices reader and writer units which may be connected or interfaced directly with both the client and the server computers.

5. The nuclear magnetic resonance imaging apparatus according to claim 1, wherein a display monitor or input devices are provided for the client computer and for the server computer (server PC).

6. The nuclear magnetic resonance imaging apparatus according to claim 1, wherein the client computer has also a hard disk unit or other kind of

memory unit for storing the communication protocols and control software and the operating system as well as the software for carrying out limited local tasks.

7. The nuclear Magnetic Resonance Imaging apparatus according to claim 1, wherein the apparatus is provided in combination with a second, or a third and further apparatuses each one of which apparatuses is connected to the same server computer by means of a switch or a hub having the requested number of ports.

8. A nuclear magnetic resonance imaging apparatus, comprising two or more apparatuses connected to the same server computer wherein each of the apparatus has a different client system configuration.

9. A nuclear magnetic resonance imaging apparatus, wherein at least part of the different peripherals of different client computers may be shared by each or part of the apparatuses connected to the network.

10. A nuclear magnetic resonance imaging apparatus, wherein a client/server architecture is applied to different kind of examination apparatuses such as ultrasound, radiographic apparatuses may be connected to the network, the server computer being provided also with the controlling., processing and displaying programs for each different kind of apparatus connected to the network.

11. A nuclear magnetic resonance imaging apparatus, wherein a client computer is located or housed in the case or frame supporting the exciting and receiving units or in devices associated therewith such as in the frame of an examination table or chair.

12. A nuclear magnetic resonance imaging apparatus, according to claim 8, wherein the server computer is a regional server which is a client of a

central server controlling a network formed by more than one regional server each one controlling one or more than one MRI apparatuses.

13. The nuclear magnetic resonance imaging apparatus, according to claim 8, wherein there is provided a communication bus which is a backbone of the driving unit of the excitation and receiving unit and each driving unit and each unit of the client computer is made in the form of one or more electronic cards each one having an input/output interface with the communication bus, while the input data and output data exchanged between the single electronic cards is coded according to a common data coding protocols.

14. The nuclear magnetic resonance imaging apparatus, according to claim 8, wherein the driving units of the exciting and receiving units include, a central image data supervision, pre-processing and reconstruction unit, which controls a control and capture unit as well as a thermal and magnetic control unit, and a receiver unit which are provided with a communication controller and are connected to one other and to the client computer and its peripherals and through the said client computer to the server computer (server PC) and its peripherals by using the same bus or the same communication lines.

15. The nuclear magnetic resonance imaging apparatus according to claim 1, wherein the command input devices consist at least partially of currently enhanced video-game peripherals, for instance a joystick or a game pad.